Listing of Claims:

Claims 1-17- (original).

1. (Original) A mathematical model, the model being comprised of basis objects, each basis object being defined by a mathematical function, each basis object having a spatial relationship to all of the other basis objects, the basis objects and the spatial relationships between the basis objects defining a three-dimensional (3-D) geometry of the model, the model being stored on a computer-readable medium, wherein the model is capable of being transformed by one or more transformation operators, each transformation operator being associated with a predetermined transformation operation, wherein when one of the transformation operators operates on one of the basis objects, the spatial relationship between the basis object that is operated on and at least one other basis object is varied, thereby causing the geometry of the model to be varied.

2. (Original) The model of claim 1, wherein the basis objects are analytical basis objects, and wherein the mathematical function defining each basis object is a quadratic equation.

3. (Original) The model of claim 1, wherein the basis objects are polygonal basis objects, each polygonal basis object corresponding to at least one polygon, each polygon having at least three vertices, the mathematical function defining each polygonal basis object describing a plane that is defined by line segments that connect the vertices of each polygon comprising the polygonal basis function.

4. (Original) The model of claim 1, wherein at least one of the basis objects is an analytical basis object and wherein at least one of the basis objects is a polygonal basis object, the mathematical function defining each analytical basis object being a quadratic equation, and wherein each polygonal basis object is comprised of at least one polygon, each polygon having at least three vertices, the mathematical function defining each polygonal basis object describing a plane that is defined by line segments that connect vertices of each polygon comprising the polygonal basis object.

5. (Original) The model of claim 1, wherein the transformation operations include scaling, translation, rotation and torsion, and wherein one or more of the transformation operations can be performed on the basis objects as a function of time to thereby cause the geometry of the model to be varied as a function of time.

6. (Original) The model of claim 4, wherein the transformation operations include scaling, translation, rotation and torsion, and wherein one or more of the transformation operations can be performed on the basis objects as a function of time to thereby cause the geometry of the model to be varied as a function of time, and wherein the model includes information that describes the transformation operations that are to be performed on particular basis objects at particular instants in time, the transformation operations to be performed on particular basis objects occurring at particular instants in time such that the 3-D geometry of the model varies as a function of the time.

7. (Original) The model of claim 4, wherein the model is a model of the human heart and thorax, and wherein the transformation operations include scaling, translation, rotation and torsion, and wherein one or more of the transformation operations can be performed on the basis objects as a function of time to thereby cause the geometry of the model to be varied as a function of time, and wherein the model includes information that describes the transformation operations that are to be performed on particular basis objects at particular instants in time in the cardiac cycle, the transformation operations to be performed on particular basis objects occurring at particular instants in time in the cardiac cycle such that the 3-D geometry of the model varies as a function of the timing of the cardiac cycle.

8. (Original) The model of claim 1, wherein the transformation operations include scaling, translation, rotation, and torsion, and wherein one or more of the transformation operations can be performed on the basis objects as a function of time to thereby cause the geometry of the model to be varied as a function of time, and wherein the model includes information that describes the transformation operations that are to be performed on particular basis objects at particular instants in time, the transformation operations to be performed on particular basis objects occurring at particular instants in time such that the 3-D geometry of the model varies as a function of time, each basis object having a priority value associated therewith, each basis object having a linear attenuation coefficient associated therewith, the

model including information identifying the priority value and the linear attenuation coefficient associated with each basis object.

9. (Original) The model of claim 1, wherein the model is a model of the human heart and thorax, wherein the transformation operations include scaling, translation, rotation, and torsion, and wherein one or more of the transformation operations can be performed on the basis objects as a function of time to thereby cause the geometry of the model to be varied as a function of time, and wherein the model includes information that describes the transformation operations that are to be performed on particular basis objects at particular instants in time in the cardiac cycle, the transformation operations to be performed on particular basis objects occurring at particular instants in time in the cardiac cycle such that the 3-D geometry of the model varies as a function of the timing of the cardiac cycle, each basis object having a priority value associated therewith, each basis object having a linear attenuation coefficient associated therewith, the model including information identifying the priority value and the linear attenuation coefficient associated with each basis object.

10. (Original) A mathematical model of the human heart and thorax, the model being comprised of basis objects, each basis object being defined by a mathematical function, each basis object having a spatial relationship to all of the other basis objects, the basis objects and the spatial relationships between the basis objects defining a three-dimensional (3-D) geometry of the model, the model being stored on a computer-readable medium, wherein the model is capable of being transformed by one or more transformation operators, each transformation operator being associated with a predetermined transformation operation, wherein when one of the transformation operators operates on one of the basis objects, the spatial relationship between the basis object that is operated on and at least one other basis object is varied, thereby causing the geometry of the model to be varied.

11. (Original) The model of claim 10, wherein the basis objects are analytical basis objects, and wherein the mathematical function defining each basis object is a quadratic equation.

12. (Original) The model of claim 10, wherein the basis objects are polygonal basis objects, each polygonal basis object corresponding to at least one polygon, each polygon having at least three vertices, the mathematical function defining each polygonal basis object

describing a plane that is defined by line segments that connect the vertices of each polygon comprising the polygonal basis function.

13. (Original) The model of claim 10, wherein at least one of the basis objects is an analytical basis object and wherein at least one of the basis objects is a polygonal basis object, the mathematical function defining each analytical basis object being a quadratic equation, and wherein each polygonal basis object is comprised of at least one polygon, each polygon having at least three vertices, the mathematical function defining each polygonal basis object describing a plane that is defined by line segments that connect vertices of each polygon comprising the polygonal basis object.

14. (Original) The model of claim 10, wherein the transformation operations include scaling, translation, rotation and torsion, and wherein one or more of the transformation operations can be performed on the basis objects as a function of time to thereby cause the geometry of the model to be varied as a function of time.

15. (Original) The model of claim 13, wherein the transformation operations include scaling, translation, rotation and torsion, and wherein one or more of the transformation operations can be performed on the basis objects as a function of time to thereby cause the geometry of the model to be varied as a function of time, and wherein the model includes information that describes the transformation operations that are to be performed on particular basis objects at particular instants in time, the transformation operations to be performed on particular basis objects occurring at particular instants in time such that the 3-D geometry of the model varies as a function of the time.

16. (Original) The model of claim 13, wherein the transformation operations include scaling, translation, rotation and torsion, and wherein one or more of the transformation operations can be performed on the basis objects as a function of time to thereby cause the geometry of the model to be varied as a function of time, and wherein the model includes information that describes the transformation operations that are to be performed on particular basis objects at particular instants in time in the cardiac cycle, the transformation operations to be performed on particular basis objects occurring at particular instants in time in the cardiac cycle such that the 3-D geometry of the model varies as a function of the timing of the cardiac cycle.

17. (Original) The model of claim 10, wherein the transformation operations include scaling, translation, rotation, and torsion, and wherein one or more of the transformation operations can be performed on the basis objects as a function of time to thereby cause the geometry of the model to be varied as a function of time, and wherein the model includes information that describes the transformation operations that are to be performed on particular basis objects at particular instants in time in the cardiac cycle, the transformation operations to be performed on particular basis objects occurring at particular instants in time in the cardiac cycle such that the 3-D geometry of the model varies as a function of the timing of the cardiac cycle, each basis object having a priority value associated therewith, each basis object having a linear attenuation coefficient associated therewith, the model including information identifying the priority value and the linear attenuation coefficient associated with each basis object.